SEQUENCE SWITCHES
PROCEDURE FOR SHORTENING SPRINGS

1. GENERAL

1.01 This section covers the procedure for shortening sequence switch springs by means of the D-157299 crimping pliers in order to obtain proper sequence of operation.

1.02 This section is reissued to incorporate material from the addendum in its proper location. In this process marginal arrows have been omitted.

1.03 The procedures covered in this section shall be applied only when a reference to BSP Section 030-801-813 appears on the circuit requirement table or the circuit drawing in connection with a spring sequence adjustment. The crimp shortens an outer spring sufficiently to advance by approximately 5 degrees, or 1/4 sequence switch position, the time of making and breaking contact between the spring and cam. The crimp shortens an inner spring sufficiently to advance by approximately 9 degrees, or nearly 1/2 position the time of making and breaking contact between the spring and cam.

1.04 ***"A" cam contact springs*** shall not be shortened by the procedures covered in this section.

1.05 When reference to BSP Section 030-801-813 appears on the circuit requirement table or the circuit drawing in connection with a spring sequence requirement, it is recommended that the tip of the spring to be shortened be replaced as covered in Section 030-801-812 and the new tip be positioned to meet the special requirements specified. This eliminates the need for the crimping operation covered in this section and also permits future replacement of the tip without replacing the entire spring assembly.

2. TOOLS

2.01 D-157299 Crimping Pliers.

2.02 KS-7782 Parallel Jaw Pliers.

3. PROCEDURE

3.01 Make busy the circuit associated with the sequence switch in the approved manner before the work is started. Consult the circuit drawing to determine whether ringing current, battery or other potentials are connected to springs adjacent to the one to be shortened and if so, remove the fuse supplying the condition to the spring.

Shortening Outer Springs (Springs Nos. 2 and 3)

3.02 If extreme care is exercised, outer springs may usually be shortened without removing the cam shaft assembly from the switch. However, if the cam shaft assembly is removed for other reasons, it is preferable to shorten the spring or springs while the assembly is out of the switch because it will be easier to use the crimping pliers without affecting the adjustment of adjacent springs.

3.03 Turn the thin metal stop of the D-157299 crimping pliers so the stop extends in line with the length of the tool. In using the crimping pliers, care must be exercised to place the tool on the spring to be shortened so that the resulting crimp will be toward the cam to avoid the possibility of short circuits between the shortened spring and adjacent springs. (See Fig. 1.) Therefore, in crimping the No. 2 spring hold the pliers so the thin metal stop is on the right hand side of the pliers as shown in Fig. 2; while in crimping the No. 3 spring hold the pliers so the stop is on the left hand side.

3.04 Place the crimping pliers in position for crimping as follows: Place the pliers above the spring to be shortened with the crimping lips directly over the spring. Hold the handles of the pliers slightly higher than the crimping end and, for a No. 2 spring, slightly offset to the left as shown in Fig. 2. (For a No. 3 spring hold the handles slightly offset to the right.) Then press the pliers down firmly into position and allow the handles of the pliers to move down-

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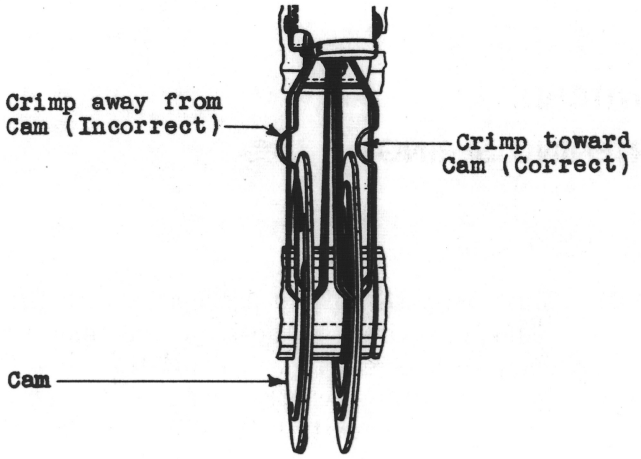

Fig. 1 – Correctly and Incorrectly Crimped Springs

ward so that the lower side of the pliers rests against the springs or the periphery of the cams.

3.05 Make sure that the thin metal stop of the pliers is resting against a designation tap of a spring assembly and that the crimping lips are fully engaging the particular spring to be shortened. Then press the handles of the pliers firmly together, so as to produce the maximum crimp permitted by the pliers. Remove the pliers and reassemble the cam shaft assembly in the switch if it was removed. Recheck the spring tension, clearance and position requirements of the spring and make sure that the spring meets the special sequence requirement specified on the circuit involved. If necessary to reduce the amount of crimp, press the crimp out slightly with the KS-7782 parallel jaw pliers and readjust the spring as outlined in the section covering A and B type sequence switches.

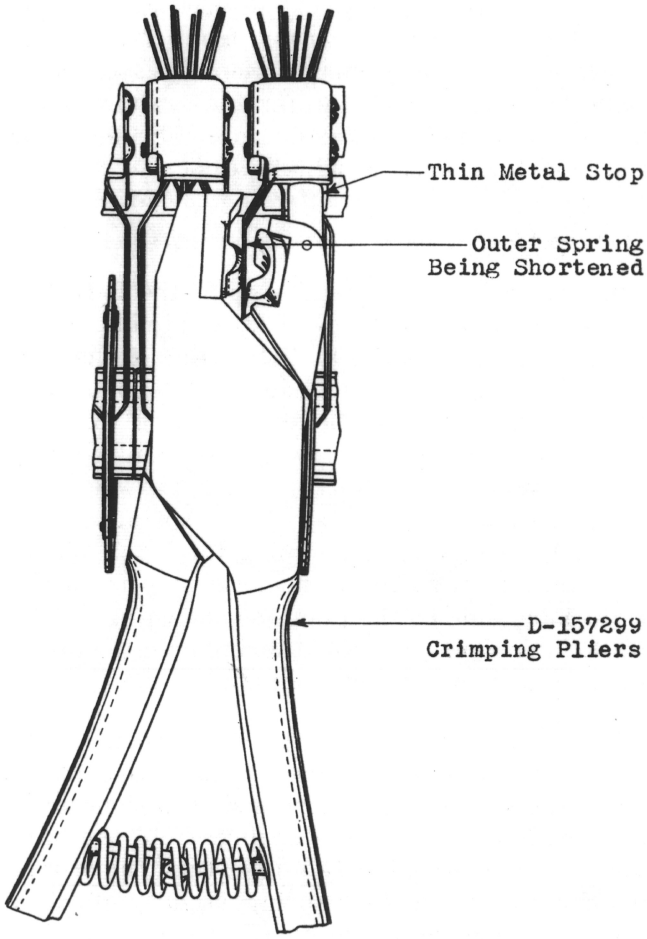

Fig. 2 – Method of Shortening Outer Springs

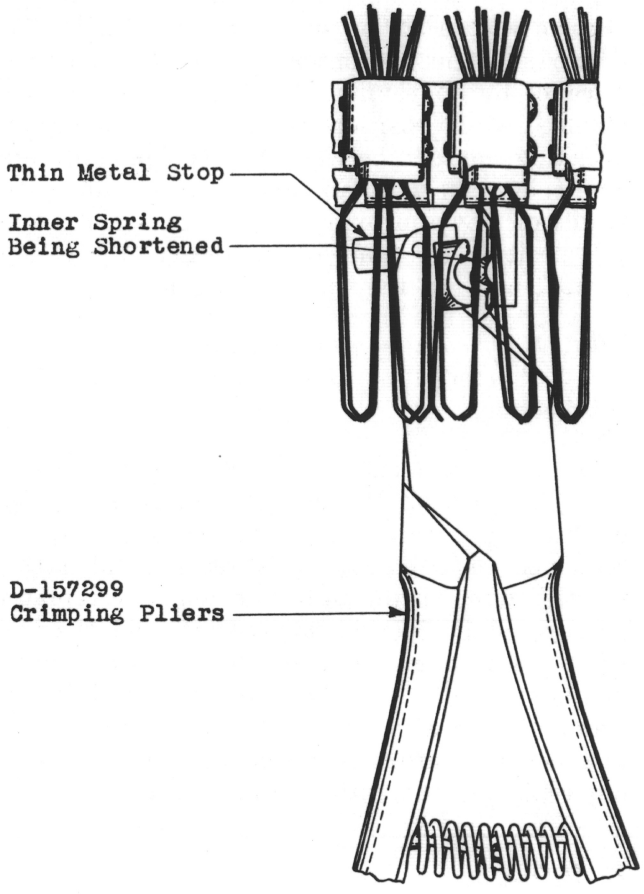

Fig. 3 – Method of Shortening Inner Springs

Shortening Inner Springs (Springs Nos. 1 and 4)

3.06 Remove the cam shaft assembly from the switch as covered in the section of this division covering piece part data and replacement procedures for this apparatus.

3.07 Make the metal stop of the D-157299 crimping pliers ineffective by turning it at right angles to the length of the tool. Care must be exercised to place the tool on the spring to be shortened so that the resulting crimp will be toward the cam so as to avoid the possibility of short circuits between the shortened spring and adjacent springs (see Fig. 1). Therefore, in crimping the No. 1 spring hold the pliers so the thin metal stop is on the right hand side of the pliers, while in crimping the No. 4 spring hold the pliers so the stop is on the left hand side as shown in Fig. 3.

3.08 Place the crimping pliers in position for crimping as follows: Place the pliers below the spring to be shortened with the crimping lips directly beneath the spring. Hold the handles of the pliers slightly lower than the crimping end and, for a No. 1 spring slightly offset to the left. (For a No. 4 spring hold the handles slightly offset to the right as shown in Fig. 3.) Then press the pliers up firmly into position and move the handles of the pliers upward so that the upper side of the pliers rests against the springs.

3.09 Make sure that the end of the pliers is resting against the sequence switch spring assembly mounting bracket and that the crimping lips are fully engaging the particular spring to be shortened. Then press the handles of the pliers firmly together so as to produce the maximum crimp permitted by the pliers. Remove the pliers and reassemble the cam shaft assembly in the switch as covered in the section of this division covering piece part data and replacement procedures for this apparatus. Recheck the spring tension, clearance and position requirements of the spring and make sure that the spring meets the special sequence requirement specified on the circuit involved. If necessary to reduce the amount of crimp, remove the cam shaft assembly and press the crimp out slightly with the KS-7782 parallel jaw pliers. Readjust the spring, with the cam shaft assembly in the switch, as outlined in the section covering A and B type sequence switches.